

FUKUSHIMA et al.
Appl. No. 10/530,861
Amendment dated July 10, 2007
Response to Office Action dated April 23, 2007

REMARKS

Claims 1-4, 7, 8 and 10-16 are pending in the application. Claims 5, 7 and 9 have been withdrawn from consideration as a result of the election of species dated March 20, 2007. Favorable reconsideration of the application in view of the remarks set forth herein is respectfully requested.

The rejection of claims 1-3, 7, 10 and 12-16 under 35 U.S.C. §102(b) over Matsumura et al. (U.S. Patent No. 6,246,451, hereinafter "Matsumura") is respectfully traversed.

At the outset, applicants believe that it would be instructive to provide a detailed explanation of the operation of the image displaying method and apparatus disclosed in Matsumura. To this end, explanatory drawings 1A-C and 2A-C are provided for the Examiner's convenience, and are referenced herein to illustrate the operation of the Masumura method and apparatus.

Matsumura is directed to a stereoscopic image displaying method and image apparatus. The stereoscopic image display apparatus of Matsumura controls light directivity from the back light 10 using a mask substrate 7 and a lenticular lens 4 for a right or left eye. Then, the light whose directivity is controlled is non-scattered or scattered by a light directivity control element 2, thereby changing a three-dimensional image or a two-dimensional image in a

display. Detailed function and operation of the Matsumura display is discussed below with reference to the attached explanatory drawings.

First, a detailed explanation of three-dimensional image display according to Matsumura will be discussed. Figures 1A and 1B each show the function of the stereoscopic image displaying apparatus 6 of Matsumura, and focuses on line R1 of the liquid crystal display 6. Figure 1A corresponds to Figure 1 of Matsumura, and Figure 1B shows the path of irradiated light from the backlight 10.

The light irradiated from the backlight 10 is shielded at periodic intervals by the first mask substrate 7 (mask line corresponding to R1, R shows the line for a right eye of the observer). The light that is not shielded is transmitted through the mask substrate 7 and passes through to the lenticular lens 4. The light arriving at the lenticular lens 4 is curved to the direction of the right eye as illustrated in Figure 1B, and transmits through the non-scattered light directivity control element 2 to be emitted in the direction of the right eye.

Figure 2A corresponds to Figure 1 of Matsumura and Figure 2B shows the path of irradiated light from the backlight 10. The light irradiated from the backlight 10 is shielded at periodic intervals by the mask substrate 7 (mask line corresponding to L1, L shows a line for a left eye). The light that is not shielded is transmitted through the mask substrate 7 and passes through to the lenticular lens 4. The light arriving at the lenticular lens 4 is curved to the direction of the left

eye as shown in Figure 2B, and transmits through the non-scattered light directivity control element 2 to be emitted in the direction of the left eye.

In this way, the liquid crystal display 6 alternately displays an image curved to the direction of the right eye and an image curved to the direction of the left eye by the lenticular lens 4 in each line (R1, L2, R3, L4, . . . , etc.). As a result, displaying a three-dimensional image may be achieved.

Display of a two-dimensional image in accordance with Matsumura will now be described. In Matsumura, when the orientation state of polymer distributed liquid crystal (PDLC) regions 2bb in the light directivity control element 2 is scattered, the light directivity that is curved to the direction of the right eye or the direction of the left eye by the lenticular lens 4 is disturbed and scattered by the PDLC regions. As a result, the light can be observed by both eyes and a two-dimensional image display can be achieved (see, e.g., Figures 1C and 2C). Thus, the PDLC liquid crystal is a control region for scattering or not scattering incident light (see, e.g., Col. 6, line 61 – Col. 7, line 4).

In the Office Action, it is alleged that the stripes of regions 2bb (also referred to as the PDLC regions) of Matsumura are barrier light-shielding parts. This is simply not correct. Quite to the contrary, and as illustrated above, the PDLC regions 2bb of Matsumura, depending upon their orientation, may either scatter (not shield) or not scatter incident light. Thus, the PDLC region 2bb of

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Matsumura is not, and cannot be, a barrier light-shielding part. Instead, the PDLC regions 2bb are control regions for scattering or non-scattering of incident light.

In complete contrast, in the claimed parallax barrier device, the liquid crystal layer is formed in a barrier light-shielding part and a resin layer having the property of transmitting light is formed in a light-transmitting part. In Matsumura, the barrier light-shielding part is reference numeral 9, *not* PDLC regions 2bb. In short, the PDLC regions 2bb of Matsumura are control regions that control light that has already been shielded by the barrier light-shielding part 9.

It is axiomatic that in order for a reference to anticipate a claim, the reference must disclose, teach or suggest each and every feature of the claim. As set forth above, Matsumura fails to disclose, teach or suggest each and every feature of the claimed invention. Thus, Matsumura cannot anticipate the claimed invention. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

The rejection of claim 4 under 35 U.S.C. §103(a) over Matsumura in view of Official Notice is respectfully traversed. At the outset, the Examiner's official notice is respectfully traversed. While the features of liquid crystal materials having positive anisotropy and a retardation of $\lambda/2$ may have possibly been known, no teaching whatsoever has been provided that would motivate one to provide this particular liquid crystal in the structure of Matsumura. Moreover, it is respectfully

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submitted that even this Official Notice fails to overcome the fundamental deficiencies noted above with respect to Matsumura. Therefore, even if, *arguendo*, the Official Notice were proper, the combination of Matsumura with the Official Notice fails to render the claimed invention obvious. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

The rejection of claim 8 under 35 U.S.C. §103(a) over Matsumura in view of Eichenlaub (U.S. Patent No. 6,157,424) is respectfully traversed. It is respectfully submitted that Eichenlaub fails to overcome the fundamental deficiencies noted above with respect to Matsumura. Therefore, even if, *arguendo*, the combination of Matsumura and Eichenlaub were proper, the proposed combination nevertheless fails to render the claimed invention obvious. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

The rejection of claim 11 under 35 U.S.C. §103(a) over Matsumura in view of Lipton et al. (U.S. Patent No. 5,686,975, hereinafter "Lipton") is respectfully traversed. It is respectfully submitted that Lipton fails to overcome the fundamental deficiencies noted above with respect to Matsumura. Therefore, even if, *arguendo*, the combination of Matsumura and Lipton were proper, the proposed combination nevertheless fails to render the claimed invention obvious.

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Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

In view of the foregoing, it is respectfully submitted that the entire application is in condition for allowance. Favorable reconsideration of the application and prompt allowance of the claims are earnestly solicited.

Should the Examiner deem that further issues require resolution prior to allowance, the Examiner is invited to contact the undersigned attorney of record at the telephone number set forth below.

Respectfully submitted,

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